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By Marvin C. Meyer

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Moore on the Hirudinea with Emphasis on His Type-Specimens

By Marvin C. Meyer [1]
Visiting Research Associate, Division of Worms

The late John Percy Moore, during his 70 years of scientific activity (1893–1963), published more than 100 papers, almost exclusively on the Annelida. In the 62 publications dealing with the Hirudinea, 3 of which were coauthored (Moore and Meyer, 1951; Meyer and Moore, 1954, 1955), 11 new genera, 78 new species, 9 new subspecies, 1 new variety, and 3 new generic names were proposed. Of the aforementioned, 1 new species and 2 new generic names were coauthored.

Moore's publications on the Hirudinea began in 1898, with a paper on the leeches of the U.S. National Museum. In that paper and those which followed in close succession, he showed those qualities of accurate observation, penetrating analysis, careful description, scholarly thoroughness, and readable style that characterized his research and publications on leeches for considerably more than half a century.

The wide geographical range of the source of his research leeches is impressive. A somewhat abridged listing includes every section of the continental United States and its coasts, Canada, Alaska and the Bering Sea area, Siberia, Greenland, Mexico, Central America, Chile, Patagonia, [British] Guiana, Puerto Rico, Hawaiian Islands, Fiji Islands, Assumption Islands, New Hebrides, Dalmatia, New Guinea, Arctic and Antarctic Seas, Palestine, Morocco, Central and East

[1] Department of Zoology, University of Maine, Orono, Maine 04473.

Africa, Natal, islands of the Malay Archipelago, Thailand, China, Burma, India, Kashmir, Australia, and New Zealand. That his leeches originated from such widely scattered points of the world attests to Moore's standing as a hirudinologist.

Moore's technical papers are devoted largely, although not exclusively, to leeches—their anatomy, both external and internal, and their ecology. His chapters on the Hirudinea in Ward and Whipple's "Freshwater Biology" (1918, 1959a), attest to his skill in analyzing, synthesizing, and evaluating the work of himself and others. In contrast to the work of his American predecessors, whose taxonomy was based only upon external characters, which themselves are ephemeral in animals known for their changeableness, Moore's descriptions were based upon dissections or serial sections, or both, and were characterized by equally detailed accounts of both the external and internal anatomy. In preparing the chapter on Hirudinea for the second edition of Ward and Whipple, he encountered so many contradictions in the diagnoses of named species that he found it necessary to reexamine Verrill's available "types" and study living specimens from the type-localities (Moore, 1952b). When he found it necessary to disagree with or to criticize work that did not seem well grounded, he always managed to do it courteously.

While Moore's contribution to the systematics of leeches deserves special mention, he will be most remembered for his earlier work on the leech neuro-segment theory and his method of expressing segment-annular relationships, a method still in current use. This theory, in character with his other writings, reflects his sound judgments. In the light of present day specialization, his versatility is amazing. It enabled him to produce important contributions on polychaetes and oligochaetes and to achieve a position of world leadership on leeches.

Moore spent a sabbatical year (1930–1931) trekking through India studying firsthand the land leeches, after which he published a paper (1932b), correcting or modifying certain statements made in his account of the Haemadipsidae in the Hirudinea volume of "The Fauna of British India" series (1927). In a 1 March 1931 letter from Calcutta, according to Wenrich (1965, p. 195), Moore stated, among other things:

> Over here I have acquired a most evil reputation, for wherever I go I am known as the Professor who studies land leeches, which is generally regarded as the acme of American eccentricity; and in a country where Al Capone, Jack Dempsey and Charlie Chaplin are regarded as the greatest and most representative Americans, that is saying a good deal.

Moore was a modest person, a gracious host with a keen sense of humor. His conversation was spiced with witticisms. I cannot speak too highly of his orderly, constructive mind and his analytical powers. He was a person who did not think in absolutes, and was able to be ob-

jective even when deeply stirred emotionally. I enjoyed his friendship for nearly three decades, during which time we collaborated closely, and I shall cherish always my visits with him.

Moore bequeathed his leech collection and scientific library to the United States National Museum, with which he was associated for 30 years as a Collaborator in the Division of Marine Invertebrates. After his death on 1 March 1965, shortly before his 96th birthday, I went to Chapel Hill, N.C., where he spent his last years, and to the family homestead near Media, Penn., to assist his daughter Elinor Moore Irvin in preparing the collection for transfer to the National Museum. At the Museum, the large collection, consisting of 2721 lots and more than 9000 specimens, was given a preliminary sorting by Marian Pettibone and George Ford of the Division of Worms. As a result of my interest in the Hirudinea and my close association with Dr. Moore, I undertook the task of getting the collection into shape for cataloging, in which priority was given to the type-specimens.

The Moore collection, the most important assemblage of specimens of its kind in the world, will serve hirudinologists both here and abroad as a reference for systematic studies on leeches. In addition to its value for the type-specimens, the collection is important because it contains many species from the main faunal regions of the world. While most of the identifications of this material were made by Moore there are numerous specimens identified and contributed by his contemporary workers abroad, viz., C. Badham, Australia; R. Blanchard and E. Brumpt, France; E. Caballero y C., Mexico; W. A. Harding and K. H. Mann, Great Britain; L. Johansson, Sweden; T. Kaburaki and A. Oka, Japan; R. Ringuelet, Argentina.

Some of the type-specimens of the Moore species-group had already been returned to the institutions supplying the material, and some had been set apart from the general collection but retained by Moore. Some of the type material, however, including paratypes and syntypes (often referred to as cotypes), had not been returned to the suppliers, nor had it been set apart from the general collection by Dr. Moore. In extracting the type-specimens from the general collection, I have been guided by the data given in the original references.

The purpose of this paper is to indicate the change in the location of the Moore material, not already deposited in museums, from his private collection to the U.S. National Museum; to verify the presence of type-specimens previously deposited in museums in America and abroad; and to provide relevant information on the type-specimens for the benefit of interested future workers.

A search was made to locate as many of Moore's type-specimens as possible. For the most part this was done by corresponding with the institutions where types had been deposited, as stated in relevant

publications, and with the institutions supplying the material. I also visited the Academy of Natural Sciences of Philadelphia, with which Moore had been actively associated for more than half a century. I have succeeded in verifying the existance of type-specimens of 70 taxa of the species-group, at the following seven institutions:

United States National Museum, Washington, D.C. (USNM): 59 species and subspecies (21 holotypes, 13 syntypes, and 111 paratypes).

British Museum (Natural History), London, England (BMNH): 16 species and subspecies (15 holotypes and 11 paratypes). Data kindly furnished by R. W. Sims and J. G. George.

Academy of Natural Sciences of Philadelphia, Philadelphia, Penn. (ANSP): 5 species (4 holotypes, 2 syntypes, and 2 paratypes). Personal visit kindly arranged for by C. W. Hart, Jr.

Zoological Survey of India, Calcutta, India (ZSI): 8 species and subspecies (8 holotypes). Data kindly furnished by A. P. Kapur.

Australian Museum, Sydney, Australia (AM): 2 species (2 holotypes and 2 paratypes). Data kindly supplied by C. N. Smithers and F. H. Talbot.

American Museum of Natural History, New York, N.Y. (AMNH): 2 species (2 holotypes and 1 paratype). Data kindly supplied by Arnold Ross.

Bernice P. Bishop Museum, Honolulu, Hawaii (BPBM): 2 species (2 holotypes and 1 paratype). Data kindly supplied by Dennis M. Devaney.

The following institutions were contacted in the search for type-specimens, but with negative results:

Beltsville Parasitological Laboratory, Animal Disease and Parasite Research Division, Agricultural Research Center, USDA, Beltsville, Md., through Willard W. Becklund; Illinois Natural History Survey, Urbana, Ill., through John D. Unzicker; Department of Zoology, University of Minnesota, Minneapolis, Minn., through Franklin G. Wallace; and Sarawak Museum, Kuching, Sarawak, Malaysia, through Benedict Sandin.

No type material was uncovered for 16 taxa of the species-group and 1 variety. It is hoped that these will be found. The missing types include the following:

GLOSSIPHONIIDAE: from Illinois, *Actionobdella inequiannulata* Moore, 1901a, *Placobdella montifera* Moore, 1906; from Connecticut, *Helobdella papillata* Moore, 1952b; from Mexico, *Placobdella mexicana* Moore, 1898; from Siberia, *Protoclepsine sexoculata* Moore, 1898. PISCICOLIDAE: from Chile, *Platybdella chilensis* Moore, 1910; from Japan, *Trachelobdella okae* Moore, 1924c. HIRUDINIDAE: from Puerto Rico, *Diplobdella antellarum* Moore, 1901b, *Hirudinaria blanchardi* Moore, 1901b; from Minnesota, *Haemopis plumbeus* Moore, 1912; from India, *Hirudo nipponia* var. *fuscolineata* Moore, 1924c; from Louisiana, *Philobdella gracile* Moore, 1901a. ERPOBDELLIDAE: from Northwest Territories, Canada, *Dina dubia* Moore and Meyer, 1951; from Illinois, *Dina microstoma* Moore, 1901a; from Minnesota, *Dina parva* Moore, 1912; from British Columbia, Canada, *Erpobdella punctata annulata* Moore, 1922. DIESTECOSTOMIDAE: from Guatemala, *Diestecostoma octannulata* Moore, 1946a.

For each of the new taxa described by Moore, which are listed alphabetically by family, I have given the original reference as well

as subsequent references to that taxon by Moore. I have also included selected references to publications by other authors in which additional figures or other supplementary data are given, or in which the species are transferred to other genera or have been synonymized. A complete list of the publications dealing with leeches by Moore is included, together with a list of the new taxa described and the new names proposed in each paper. The type material is documented by names of the museum(s) where it is deposited, its catalog number, locality, collector (when available), and the number of specimens. In attempting to track down the types, I found that the data accompanying the material occasionally did not agree with the text. In such cases the data accompanying the specimens are given. Only those types have been included that have had their presence verified.

To the aforementioned individuals, who kindly cooperated in the search for type material, and the institutions they represent, I wish to express my appreciation. I am also grateful to Meredith L. Jones, Supervisor and Associate Curator of the Division of Worms, and Marian H. Pettibone, Curator of the Division of Worms, both of the Museum of Natural History, for helpful comments and good working conditions, to Fenner A. Chace, Jr., Senior Zoologist, Department of Invertebrate Zoology, Museum of Natural History, for help in deciding some problems of nomenclature, and to the administration of the University of Maine for granting me a leave of absence, enabling me to take advantage of a Visiting Research Associateship, tenable at the U.S. National Museum, awarded me by the National Research Council.

Order RHYNCHOBDELLAE

Family GLOSSIPHONIIDAE

Actinobdella Moore

Actinobdella annectens Moore

Actinobdella annectens Moore, 1906, p. 160, figs. 1, 2; 1918, p. 655; 1924a, pp. 26, 551.

Type material: Holotype, USNM 5228, Rondeau Harbor, Lake Erie, Long Point, Ontario, Canada, August 1899, from snapping turtle, J. Reighard collector.

Actinobdella inequiannulata Moore

Actinobdella inequiannulata Moore, 1901a, p. 504, pl. 43 (figs. 8–11); 1912a, p. 99, pl. 3 (figs. 19–20); 1918, p. 655, fig. 1001; 1924a, p. 26; 1959, p. 551, fig. 23.6.

Type material: No type material was found.

Type-locality: Illinois River at Havana, Ill. (Moore, 1924a, p. 26).

Actinobdella triannulata Moore

Actinobdella triannulata Moore, 1924a, p. 23, fig. 1; 1959, p. 551.—Meyer and Moore, 1954, p. 66.

Type material: Holotype, ANSP 4054, Lake Nipigon, Ontario, Canada, August 1921, F. B. Adamstone collector. Paratype, ANSP 4055, Lake Nipigon, Ontario, Canada, August 1921, F. B. Adamstone collector. Paratype; USNM 36302, station 7, McL. Bay, Lake Nipigon, Ontario, Canada, July 1922, F. B. Adamstone collector.

Batrachobdella amnicola Moore

Batrachobdella amnicola Moore, 1958, p. 313, pl. 7 (figs. 5–7).

Type material: Syntype, USNM 36387, no. 32, Engamani River, Hluhluwe, Zululand, under stones, 1949. Syntypes, USNM 36416, no. 32, Engamani River, Hluhluwe, Zululand, under stones, 1949, 2 specimens, sectioned (1 transverse, 1 sagittal). Syntypes, USNM 36417, no. 27, Hluhluwe Game Preserve, under stones in river, 1949 2 specimens, sectioned (transverse). Syntypes, USNM 36431, 1949, 3 specimens mounted (2 slides). Since uncertainty exists as to which lot of material the whole mounts belong, the exact locality in Zululand is unknown.

Remarks: The generic name *Batrachobdella* should read *Batracobdella*, the original spelling (M. C. Viguier, July 1879, "Comptes Rendus des Seances de L'Academie des Sciences," Paris, vol. 89, pp. 110–112), which Moore had used earlier infra. Later in the same year in an English translation of Viguier's article (September 1879, "Annals and Magazine of Natural History," ser. 5, vol. 4, pp. 250–251), the spelling of *Batracobdella* was changed to *Batrachobdella*.

Batracobdella quadrata Moore

Batracobdella quadrata Moore, 1939c, p. 304, pl. 26 (fig. 20).

Type material: Holotype, BMNH 1933.1.19.12, Omer-Cooper collection from Abyssinia, Addis Ababa, pond no. 1, British Legation, September 1926. Paratypes, BMNH 1933.1.10.13/14, Omer-Cooper collection from Abyssinia, Addis Ababa, pond no. 1, British Legation, September 1926, 2 specimens. Paratype, USNM 36425, Lang-Chapin Congo Expedition, no. 4542, pool in steppe, Kabare, Belgian Congo, August 1914, specimen mounted.

Glossiphonia conifera Moore

Glossiphonia conifera Moore, 1933, p. 297.
Helobdella conifera.—Autrum, 1936, p. 30.—Moore, 1939b, p. 428; 1939c, p. 300, pl. 25 (fig. 2), pl. 26 (fig. 18); 1958, p. 310, pl. 7 (fig. 4), text-fig. 3.

Type material: Holotype, BMNH 1933.1.21.18, Lake Bunyoni, among weeds along the shore, station 707 A, Uganda, E. B. Worthing-

ton collector. Paratypes, BMNH 1933.1.19.1/2, Lake Bunyoni, among weeds along the shore, station 707 A, E. B. Worthington collector, 2 specimens. Paratype, USNM 36340, Lake Bunyoni, among weeds along the shore, station 707 A, Uganda, E. B. Worthington collector Paratype, USNM 36424, Lake Bunyoni, among weeds along the shore, station 707 A, Uganda, E. B. Worthington collector, specimen mounted.

Glossiphonia disjuncta Moore

Glossiphonia disjuncta Moore, 1939c, p. 299, pl. 25 (fig. 1).

Type material: Holotype, BMNH 1933.1.21.17, in shore weeds at Bufundi on Lake Bunyoni, Uganda, station no. 716, August 1931, E. B. Worthington collector. Paratypes, BMNH 1933.1.19.16/18, water hole, north of Make River, Abyssinia, November 1926, J. Omer-Cooper collector, 2 specimens; Wourambouchi [Wouramboulchi River], Abyssinia, October 1926, J. Omer-Cooper collector, 1 specimen. Paratype, USNM 36361, in shore weeds at Bufundi on Lake Bunyoni, Uganda, station no. 716, August 1931, E. B. Worthington collector. Paratype, USNM 36434, in shore weeds at Bufundi on Lake Bunyoni, Uganda, station no. 716, August 1931, E. B. Worthington collector, specimen sectioned (frontal).

Glossiphonia duplicata Moore

Glossiphonia duplicata Moore, 1911, p. 675, pl. 49 (fig. 10), pl. 50 (figs. 16–22).
Helobdella duplicata.—Autrum, 1936, p. 27, fig. 17.—Ringuelet, 1944, p. 22, fig. 11.

Type material: Syntypes, ANSP 570, small stream on Rio Chico, 15 miles above Sierra Oveja, Patagonia, February 1908, J. B. Hatcher collector, 2 specimens. Syntype, USNM 36301, on Rio Chico, Patagonia, J. B. Hatcher collector, specimen sectioned (sagittal, anterior end; transverse, posterior end).

Glossiphonia lata multipapillata Moore

Glossiphonia lata multipapillata Moore, 1930b, p. 175, pl. 7 (figs. 6–8).

Type material: Paratypes, USNM 36337, Honda at Rokotan, Manchuria, October 1925, 3 specimens.

Glossiphonia magnidiscus Moore

Glossiphonia magnidiscus Moore, 1938b, p. 68, figs. 1–2.

Type material: Holotype, USNM 36352, San Bulha Cave, Motul, Yucatan, from gills of the fish *Rhamdia guatemalensis decolor* Hubbs, July 1932, A. S. Pearse and E. P. Creaser collectors. Paratypes, USNM 36353, El Paso de Caballo on Rio San Pedro de Martin, Guatemala, from mouth of the fish *Petenia splendida*, April 1932, C. L. Lundell collector, 2 specimens.

Glossiphonia simplex Moore

Glossiphonia simplex Moore, 1911, p. 681, pl. 49 (fig. 11), pl. 50 (figs. 15, 23, 24).
Helobdella simplex.—Autrum, 1936, p. 22.—Moore, 1939b, p. 428.—Ringuelet, 1944, p. 26, figs. 12–15.

Type material: Holotype, ANSP 572, on Rio Chico, 5 miles above Sierra Ventana, Patagonia, February 1899, J. B. Hatcher collector.

Glossiphonia (*Helobdella*) *nuda* Moore

Glossiphonia (*Helobdella*) *nuda* Moore, 1924c, p. 354, pl. 19 (figs. 3–4), pl. 21 (figs. 20–23); 1930b, p. 175.
Helobdella nuda.—Moore, 1930a, p. 39; 1930b, p. 191.
Batracobdella nuda.—Autrum, 1936, p. 42.

Type material: Holotype, USNM 36303, Soochow, China, N. Gist Gee collector. Paratypes, USNM 36304, Soochow, China, N. Gist Gee collector, 3 specimens. Paratypes, USNM 36423, Soochow, China, N. Gist Gee collector, 4 specimens: 3 mounted (2 slides), 1 sectioned (sagittal).

Helobdella papillata Moore

Clepsine papillifera var. b. Verrill, 1872

Helobdella papillata Moore, 1952b, p. 3; 1959a, p. 549.

Type material: No type material was found.

Type-locality: Whitneyville Lake, near New Haven, Conn.

Helobdella punctato-lineata Moore

Helobdella punctato-lineata Moore, 1939b, p. 422, figs. 1–2.—McAnnally and D. V. Moore, p. 196, figs. 1–2.
Helobdella punctato-lineata.—Moore, 1959, p. 548.—Mann, 1962, p. 156.

Type material: Holotype, USNM 36359, ponds in Guajataca and Isabela, NW Puerto Rico, March 1938, W. A. Hoffman collector. Paratypes, USNM 36360, ponds in Guajataca and Isabela, NW Puerto Rico, March 1938, W. A. Hoffman collector, 11 specimens. Paratypes, USMN 36402, ponds in Guajataca and Isabela, NW Puerto Rico, March 1938, W. A. Hoffman collector, 6 specimens: 4 stained and mounted (2 slides) and 2 sectioned (1 transverse, 1 sagittal).

Remarks: According to Art. 32c(i) of the "International Code of Zoological Nomenclature" (Intern. Trust Zool. Nomen. London, 1961), *punctato-lineata* should read *punctatolineata*.

Hemiclepsis marginata asiatica Moore

Hemiclepsis marginata asiatica Moore, 1924c, p. 359, pl. 21 (fig. 24); 1930b, p. 179.—Harding, 1927, p. 87, fig. 35.—Bennike, 1943, p. 80.

Type material: Holotype, ZSI W 1445/1, Kashmir Survey, station

2, Srinagar, Chenar Bagh nullah [?stream], June 1921. Paratype, USNM 36305, Kashmir Survey, station 20, Nale Mar, a slow-running nullah from the Dal Lake into Jhelum River. Paratypes, USNM 36306, Achibal Spring, Jhelum Valley, Kashmir, 7 specimens (2 with young). Paratype, USNM 36534, Kashmir Survey, station 17, stream from the waterworks reservoir leading to trout farm at Harwan, Kashmir, July 1921, specimen mounted.

Microbdella Moore, 1900

Microbdella biannulata Moore

Microbdella biannulata Moore, 1900a, p. 51, pl. 6 (figs. 1–6).
Oligobdella biannulata.—Moore, 1918, p. 654, fig. 1000; 1959, p. 550, fig. 23.5.

Type material: Syntypes, USNM 36394, Yonahlossee Road, Blowing Rock, N. C., elevation exceeding 3500 ft., 1898, from the salamander *Desmognathus nigra*, 5 specimens sectioned (2 sagittal, 2 transverse, 1 frontal).

Remarks: *Desmognathus nigra* is now regarded as including 2 species, both occurring in North Carolina. *Desmognathus quadramaculata* is more common, but *D. fuscus fuscus* is larger and probably more aquatic. This information was kindly supplied by the late Doris M. Cochran, U.S. National Museum, to whom I am grateful.

Oculobdella lucida Moore

Oculobdella lucida Moore, 1954, p. 68, pl. 1 (figs. 1–2), pl. 2 [*in* Meyer and Moore, 1954]; 1959, p. 551.
Oculobdella lucida Meyer and Moore [sic].—Moore, 1959, p. 551.—Mann, 1962, p. 159.—J. E. Moore, 1964, pp. 1, 4.

Type material: Holotype, USNM 36390, Whitewater Lake, Manitoba, among *Typha* debris in shallow water, June 1950, N. Neufeld collector. Paratype, USNM 36391, Whitewater Lake, Manitoba, among *Typha* debris in shallow water, June 1950, N. Neufeld collector, specimen dissected. Paratypes, USNM 36392, Whitewater Lake, Manitoba, among submarginal and emergent plants and their debris, in shallow water, June 1950, N. Neufeld collector, 6 specimens (1 bisected midsagitally). Paratypes, USNM 36393, Whitewater Lake, Manitoba, among *Typha* and *Eleocharis* shoots, in shallow water, September 1950, N. Neufeld collector, 5 specimens (1 dissected). Paratypes, USNM 36421, Whitewater Lake, Manitoba, among submarginal and emergent plants and their debris, in shallow water, June 1950, N. Neufeld collector, 5 specimens, mounted (1 slide). Paratypes, USNM 36422, Whitewater Lake, Manitoba, among *Typha* and *Eleocharis* shoots, in shallow water, September 1950, N. Neufeld collector, 10 specimens: 9 mounted (2 slides), 1 sectioned (sagittal).

Placobdella (*Parabdella*) *aspera* Moore

Placobdella (*Parabdella*) *aspera* Moore, 1939c, p. 309, pl. 25 (figs. 5–7).

Type material: Holotype, AMNH 2585, American Museum Lang-Chapin Congo Expedition, no. 100, Medje, Belgian Congo, May 1910, from crocodile no. 475. Paratypes, AMNH 2581, American Museum Lang-Chapin Congo Expedition, no. 100, Medje, Belgian Congo, May 1910, from crocodile no. 475, 14 specimens. Paratypes, USNM 36362, American Museum Lang-Chapin Congo Expecition, no. 100, Medje, Belgian Congo, May 1910, from crocodile no. 475, 15 specimens (2 dissected). Paratypes, USNM 36430, American Museum Lang-Chapin Congo Expedition, no. 100, Medje, Belgian Congo, May 1910, from crocodile no. 475, 2 specimens (mounted, 1 slide).

Remarks: Moore stated (p. 311) that there are 30 type-specimens. But 32 type-specimens are present or accounted for: Arnold Ross confirmed the presence of 15 in the AMNH, and there are 17 in the USNM collection.

Protoclepsine Moore, 1898

Protoclepsine sexoculata Moore

Protoclepsine sexoculata Moore, 1898, p. 546, pl. 40 (fig. 1).
Protoclepsis meyeri Livanow, 1902, p. 346, pl. 13 (fig. 4).
Theromyzon sexoculata.—Moore, 1924c, p. 346; 1936b, p. 191.—Harding, 1927, p. 82.
Protoclepsis sexoculata.—Autrum, 1934, p. 274. [*In* Scriban and Autrum, 1932–1934.]
Theromyzon sexoculatum.—Autrum, 1936, p. 47.

Type material: No type material was found.

Type-locality: Bering Island, Commander Islands, Siberia.

Oligobdella Moore, 1918

New name for *Microbdella* Moore, 1900, preoccupied.

Placobdella auroguttata

Placobdella auroguttata Moore, 1939c, p. 317, pl. 26 (fig. 21).

Type material: Holotype, BMNH 1933.1.21.34, Station 123A no. 1, Kibero, SE shore, Lake Albert, Uganda, April 1928, E. B. Worthington collector.

Placobdella mexicana Moore

Placobdella mexicana Moore, 1898, p. 550, pl. 40 (fig. 3).
Haementeria (*Placobdella*) *moorei.*—Autrum, 1936, p. 70, fig. 40. [New name for *Haementeria mexicana* (Moore, 1898), preoccupied.]

Type material: No type material was found.

Type-locality: Mexico.

Placobdella montifera Moore

Hemiclepsis carinata.—Moore, 1901a, p. 498, pl. 42 (fig. 5). [Not *Clepsine papillifera* var. *carinata* Verrill, 1874.]
Placobdella montifera Moore, 1906, p. 169; 1912, p. 88, pl. 1 (fig. 5), pl. 2 (fig. 10); 1918, p. 652; 1920, p. 94; 1924a, p. 23; 1936c, p. 113; 1959, p. 549.
Haementeria (*Placobdella*) *montifera.*—Autrum, 1936, p. 64, fig. 40.

Type material: No type material was found.
Type-locality: Illinois.

Placobdella multilineata Moore

Placobdella multilineata Moore, 1953, p. 1, pl. 1 (fig. 1); 1959, p. 550.

Type material: Holotype, USNM 36435, New Orleans, La., March 1917, H. E. Hubert collector. Paratypes, USNM 36383, New Orleans, La., March 1917, H. E. Hubert collector, 4 specimens. Paratypes, USNM 36384, Norman, Okla., April 1926, C. Ellsworth collector, 2 specimens (1 dissected). Paratypes, USNM 36413, New Orleans, La., from snapping turtle, July 1922, P. Viosca collector, 2 specimens sectioned (1 transverse, 1 frontal [anterior half]). Paratype, USNM 36428, New Orleans, La., from snapping turtle, July 1922, P. Viosca collector, specimen mounted (posterior sucker detached but included).

Placobdella pulchra Moore

Placobdella pulchra Moore, 1939c, p. 314, pl. 25 (figs. 8–9).

Type material: Holotype, BMNH 1930.9.15.64/65, Christy Tanganyika Collection, no. 441, attached to weeds in a water-blocked river mouth, confluent of Lake Tanganyika, October 1926. Paratypes BMNH 1930.9.15.64/65, Christy Tanganyika Collection, no. 441, attached to weeds in a water-blocked river mouth, confluent of Lake Tanganyika, October 1926, 2 specimens. Paratypes, USNM 36363, Mansya River, outlet of Lake Young, Northern Rhodesia, no. 49, from neck of tortoise, August 1936, C. K. Ricardo collector, 8 specimens (1 dissected). Paratypes, USNM 36429, Mansya River, outlet of Lake Young, Northern Rhodesia, no. 49, from neck of tortoise, August 1936, C. K. Ricardo collector, 2 specimens mounted (1 slide).

Placobdella quadrioculata Moore

Placobdella quadrioculata Moore, 1930b, p. 178, pl. 8 (figs. 10–12).
Haementeria (*Parabdella*) *quadrioculata.*—Autrum, 1936, p. 8[illegible].

Type material: Holotype, USNM 36338, Nanking, China, no. 6, 1927, C. Ping collector. Paratype, USNM 36339, Nanking, China, F. C. Zia collector.

Placobdella unita Moore

Placobdella unita Moore, 1958, p. 320, pl. 8 (figs. 12–13), text-fig. 6.

Type material: Syntypes, USNM 36388, no. 3, Camaeis, Southwest Africa, from the reptile *Pelomedusa subrufa* (=*P. galeata*), 1925, R. F. Lawrence collector, 2 specimens, incomplete (cut parasagitally, only larger pieces present). Syntypes, USNM 36389, no. 26, Albert Falls, Natal, University of Natal, Zoological Survey, from the reptile *Pelusuos sinuatus*, 15 specimens. Syntypes, USNM 36418, no. 3, Camaeis, Southwest Africa, from *Pelomedusa subrufa* (=*P. galeata*), 1925, R. F. Lawrence collector, 2 specimens+ocular region of a third, mounted (1 slide). Syntypes, USNM 36419, no. 26, Albert Falls, Natal, University of Natal, Zoological Survey, from *Pelusuos sinuatus*, 4 specimens, mounted (1 slide). Syntypes, USNM 36420, no. 3, Camaeis, Southwest Africa, from *Pelomedusa subrufa* (=*P. galeata*), 1925, R. F. Lawrence collector, 2 specimens, sectioned (both sagittal).

Family Piscicolidae

Austrobdella anoculata Moore

Austrobdella anoculata Moore, 1940, p. 520, figs. 1–4.—Ingram, 1957, p. 204.

Type material: Holotype, USNM 20573, between Capes Alexander and Chalon, NW Greenland, 25–40 fms, August 1937, R. A. Bartlett collector. Paratype, USNM 36406, between Capes Alexander and Chalon, NW Greenland, 25–40 fms, August 1937, R. A. Bartlett collector, specimen sectioned (transverse).

Branchellion lobata Moore

Branchellion lobata Moore, 1952a, p. 36, figs. 1, 7b, 8, 9.—Ingram, 1957, p. 213.

Type material: Holotype, USNM 36379, Pacific Grove, Calif., 40–60 fms, from the fish *Triakis henlei*, March 1929, E. F. Ricketts collector. Paratypes, USNM 36380, Pacific Grove, Calif., 40–60 fms, from *Triakis henlei*, March 1929, E. F. Ricketts collector, 4 specimens (1 dissected). Paratypes, USNM 36381, Pacific Grove, Calif., 40–60 fms, from the fish *Squalus acanthias* (=*S. sucklii*), April 1929, E. F. Ricketts collector, 2 specimens. Paratype, USNM 36382, off San Francisco, Calif., from *Squalus acanthias* (=*S. sucklii*), February 1941. Paratypes, USNM 36410, Pacific Grove, Calif., 40–60 fms, from *Triakis henlei*, March 1928, E. F. Ricketts collector, 4 specimens (2 slides). Paratypes, USNM 36411, Dillon Beach, Calif., from the fish *Squatina californica*, E. C. Dougherty collector, specimen mounted. Paratype, USNM 36412, Pacific Grove, Calif., February 1928, E. F. Ricketts collector, specimen sectioned (anterior half, sagittal; remainder, transverse).

Johanssonia abditovesiculata Moore

Johanssonia abditovesiculata Moore, 1952a, p. 29, figs. 2c, 6a–c, 7a.—Ingram, 1957, p. 212.

Type material: Holotype, BPBM R139, Honolulu Aquarium, from the fish *Arothron hispidus* (=*Tetraodon hispidus*), February 1949, S. Tinker collector. Paratypes, BPBM R155, Honolulu Aquarium, from *Arothron hispidus* (=*Tetraodon hispidus*), February 1949, S. Tinker collector, 5 specimens. Paratypes, USNM 36378, Honolulu Aquarium, from *Arothron hispidus* (=*Tetraodon hispidus*), February 1949, S. Tinker collector, 2 specimens. Paratypes, USNM 36409, Honolulu Aquarium, from *Arothron hispidus* (=*Tetraodon hispidus*), February 1949, S. Tinker collector, 5 specimens: 3 mounted (1 slide) and 2 sectioned (1 transverse [slide 6 in the series missing], 1 sagittal).

Remarks: Moore stated (pp. 32, 36) that there are 8 type-specimens. But 13 type-specimens are present or accounted for: D. M. Devaney confirmed the presence of 6 in the BPBM, and there are 7 in the USNM collection.

Marsipobdella Moore

Marsipobdella sacculata Moore

Marsipodella sacculata Moore, 1952a, p. 22, figs. 2b, 3–5.

Type material: Holotype, USNM 36376, Pacific Grove, Calif., from skates, E. F. Ricketts collector. Paratypes, USNM 36377, Pacific Grove, Calif., from skates, E. F. Ricketts collector, 15 specimens (2 missing anterior end). Paratypes, USNM 36408, Pacific Grove, Calif., from skates, E. F. Ricketts collector, 5 specimens plus anterior ends of 2 (missing pieces from 2 incomplete specimens, supra): 4 mounted (1 slide); 1 and portions sectioned (1 [parts of 2 specimens] transverse; 2 anterior ends, sagittal).

Notostomobdella Moore and Meyer, 1951

New name for *Notostomum* Levinsen, 1882, preoccupied.

Ottoniobdella Moore and Meyer, 1951

New name for *Ottonia* Malm, 1874, preoccupied.

Ottoniobdella stellata Moore

Ottoniobdella stellata Moore, 1958, p. 307, pl. 7 (fig. 3), text-fig. 2.
Malmiana stellata.—Soós, 1965, p. 440.

Type material: Paratype, USNM 36426, Richards Bay, Natal, South Africa, from toby fish (species unknown), no. 38, July 1958, specimen mounted.

Oxytonostoma varituberculata Moore

Oxytonostoma varituberculata Moore, 1938a, p. 10, pl. 1 (figs. 4–5).

Type material: Holotype, AM W.4162, ANARE station 2, lat. 66°55′S, long. 145°21′E, 288–300 fms, December 1913 (specimen cut open midventrally in middle region). Paratype, AM W.4163, ANARE station 2, lat. 66°55′S, long. 145°21′E, 288–300 fms, December 1913. Paratype, USNM 36351, Mawson Antarctic Expedition, station 9, lat. 66°8′S, long. 94°17′E, 120 fms, January 1914.

Phyllobdella Moore

Phyllobdella maculata Moore

Phyllobdella maculata Moore, 1939c, p. 321, pl. 25 (figs. 13–15), text-fig. 1.

Type material: Holotype, BMNH 1933.1.20.11, Pask-Christy Tanganyika Expedition, station 432S, Kirando, east shore of Lake Tanganyika, from tail of the fish *Barbus tropidolepis*, October 1926. Paratype, USNM 36364, Pask-Christy Tanganyika Expedition, station 432S., Kirando, east shore of Lake Tanganyika, from tail of the fish *Barbus topidolepis*, October 1926.

Piscicola zebra Moore

Piscicola zebra Moore, 1898, p. 555.—Meyer, 1940, p. 364.

Type material: Syntypes, USNM 4818, Arichat, Cape Breton, Nova Scotia, from lips of lamper eel (*Petromyzon marinus*), 1890, W. A. Stearns collector, 4 specimens (1 in pieces).

Platybdella chilensis Moore

Platybdella chilensis Moore, 1910, p. 29.

Type material: No type material was found.

Type-locality: Valparaiso, Chile, from the fish *Aphos porosus* (=*Porichthys porosus*).

Pontobdella biannulata Moore

Pontobdella biannulata Moore, 1957, p. 102, fig. 1.
Stibarobdella biannulata.—Llewellyn, 1966, p. 405.

Type material: Holotype, USNM 36385, BANZ Antarctic Research Expedition, station 39, coll. no. 1809. Paratype, USNM 36414, BANZ Antarctic Research Expedition, station 107, coll. no. 1804, specimen sectioned (sagittal).

Pontobdella rugosa Moore

Pontobdella rugosa Moore, 1938a, p. 5, pl. 1 (figs. 1–3), text-fig. 1; 1957, p. 102.

Type material: Holotype, AM W.4164, ANARE station 7, lat. 65°42′S, long. 92°10′E, 60 fms, January 1914. Paratypes, AM W.4165, ANARE station 7, lat. 65°42′S, long. 92°10′E, 60 fms, January 1914, 2 specimens. Paratypes, USNM 36348, Mawson Antarctic Expedition station 7, lat. 65°42′S, long. 92°10′E, 60 fms, January 1914, 16 specimens (body wall of 1 cut longitudinally). Paratypes, USNM 36349, Mawson Antarctic Expedition, Commonwealth Bay, King George V Land, 25 fms (the label in the vial reads "Adelieland and 85 fms, for King George V Land and 25 fms, respectively, in text"), September 1912, from fish, 2 specimens. Paratype, USNM 36350, Mawson Antarctic Expedition, station 3, lat. 66°32′S, long. 141°39′E, 157 fms, December 1913. Paratypes, USNM 36401, Mawson Expedition, station 7, lat. 65°42′S, long 92°10′E, 60 fms, January 1914, 3 specimens sectioned (2 transverse, 1 sagittal).

Remarks: Moore stated (p. 9) that 16 specimens were from station 7. But 22 specimens are present or accounted for: there are 19 in the USNM collection (16 in alcohol and 3 series of sections), and 3 in the Australian Museum.

Trachelobdella maculata Moore

Trachelobdella maculata Moore, 1898, p. 552, pl. 40 (fig. 6).

Type material: Holotype, USNM 1314 (in two pieces), Steamer *Albatross*.

Type-locality: Unknown.

Trachelobdella okae Moore

Trachelobdella okae Moore, 1924c, p. 345.—Oka, 1927, p. 239, figs. A–B.—Epshtein, 1964, p. 907, figs. 1–2.

Type material: No type material was found.

Type-locality: Bay of Tokyo, Japan (Blanchard, 1896, p. 317).

Trachelobdella rugosa Moore

Trachelobdella rugosa Moore, 1898, p. 553, pl. 40 (fig. 5).

Type material: Holotype, USNM 5035, from red snapper. Paratypes, USNM 36300, from red snapper, 5 specimens (2 in pieces).

Type-locality: Unknown.

Trachelobdellina Moore

Trachelobdellina glabra Moore

Trachelobdellina glabra Moore, 1957, p. 104, fig. 2.

Type material: Holotype, USNM 36386, BANZ Antarctic Research Expedition, station 103, coll. no. 1807. Paratypes, USNM 36415, BANZ Antarctic Research Expedition, station 103, coll. no. 1807, 2 specimens: 1 mounted, 1 sectioned (transverse).

Order ARHYNCHOBDELLAE

Family HIRUDINIDAE

Aetheobdella Moore

Aetheobdella hirudoides Moore

Aetheobdella hirudoides Moore, 1935b, p. 297, pl. 10, text-figs. 1–3.

Type material: Holotype BMNH, 1934.11.21.1, pond at Cambewarra, near Nowa, New South Wales, Australia, December 1930, F. A. Rodway collector.

Remarks: Whitman, 1886 (Quart. Journ. Micr. Sci., new ser., vol. 26, pp. 317–416) is followed here in the spelling of Hirudinidae, rather than the often used spelling of Hirudidae. According to Art. 29 and 29a of the "International Code of Zoological Nomenclature" (Intern. Trust Zool. Nomen., London, 1961), Hirudinidae is classically correct. The genitive singular of the type-genus *Hirudo* is "hirudin-is"—hence Hirudinidae. The correct spelling was kindly called to my attention by Roman Kenk, U.S. National Museum, to whom I am grateful.

Dinobdella Moore

Dinobdella notata Moore

Whitmania sp.?—Moore, 1924c, p. 382, pl. 20 (figs. 15–18).
Dinobdella notata Moore, 1927, p. 185, 296, pl. 8 (figs. 34–35).

Type material: Holotype, ZSI W 1424/1, Kodaikanal, Palni Hills, South India, 6850 ft, August 1922, S. Kemp collector.

Diplobdella Moore

Diplobdella antellarum Moore

Diplobdella antellarum Moore, 1901b, p. 219, pl. 13 (figs. 10–17).

Type material: No type material was found.
Type-locality: Puerto Rico.

Haemopis gracilis Moore

Haemopis gracilis Moore, 1930a, p. 40; 1930b, p. 186, pl. 8 (figs. 16–19).

Type material: Paratype, USNM 36332, Nanking, China, no. 12, C. Ping, collector, specimen (dissected). Paratypes, USNM 36333, Nanking, China, no. 9, C. Ping collector, 2 specimens (1 dissected). Paratypes, USNM 36334, Nanking, China, F. C. Zia collector, 2 specimens. Paratype, USNM 36335, Nanking, China, no. 4, F. C. Zia collector. Paratype, USNM 36336, Soochow, China, N. Gist Gee collector, specimen dissected.

Haemopis plumbeus Moore

Haemopis plumbeus Moore, 1921, p. 115, pl. 4 (figs. 29–31); 1918, p. 658.
Haemopis plumbea Moore, 1959, p. 555.

Type material: No type material was found.
Type-locality: Minnesota.

Hirudinaria blanchardi Moore

Hirudinaria blanchardi Moore, 1901b, p. 214, pl. 12 (figs. 1–9).
Poecilobdella blanchardi.—Caballero. 1956, p. 283. [By implication.]

Type material: No type material was found.
Type-locality: Puerto Rico.

Hirudinaria javanica similis Moore

Hirudiaria javanica similis Moore, 1945b, p. 265, fig. 4.
Poecilobdella javanica similis.—Caballero, 1956, p. 283. [By implication.]

Type material: Holotype, USNM 20644, Yun Hsien, Yunnan Province, China, March 1943, W. J. Jellison collector. Paratypes, USNM 20645, Yun Hsien, Yunnan Province, China, March 1943, W. J. Jellison collector, 3 specimens (2 dissected).

Hirudinaria (*Poecilobdella*) *viridis* Moore

Hirudinaria (*Poecilobdella*) *viridis* Moore, 1927, p. 239, pl. 8 (figs. 31–33), text-figs. 57–58.
Poecilobdella viridis.—Caballero, 1956, p. 283. [By implication.]

Type material: Holotype, ZSI ZEV 3655/7, Shasthancottah, Travancore, Madras State, India, 300 ft, N. Annandale collector. Paratypes, USNM 36307, Shasthancottah, 12 miles NNE of Quilon, Travancore, Madras State, N. Annandale collector, 5 specimens (2 dissected).

Hirudo nipponia var. *fuscolineata* Moore

Hirudo nipponia var. *fuscolineata* Moore, 1924c, p. 373, pl. 21 (figs. 27–28).
Hirudo birmanica (Blanchard).—Moore, 1927, p. 192, pl. 8 (fig. 26), text-fig. 49.

Type material: No type material was found.

Type-locality: Madras Province, India.

Limnatis dissimulata Moore

Limnatis dissimulata Moore, 1938c, p. 65, pl. 6 (figs. 1–4).

Type material: Paratype, USNM 36354, Bukit Sagu, near Sungai Lembing, Pahang, Malay Peninsula, September 1935, M. W. F. Tweedie collector, specimen dissected. Paratype, USNM 36355, Bentong, Pahang, Malay Peninsula, July 1935, M. W. F. Tweedie collector.

Limnatis fenestrata Moore

Limnatis fenestrata Moore, 1939c, p. 343, pl. 27 (figs. 35–36, 43, 48), pl. 28 (fig. 56); 1958, p. 333.

Type material: Holotype, ANSP 4172, Botletle River near Lake Ngami, Bechuanaland, 1931, R. M. de Schauensee collector (specimen dissected). Paratypes, BMNH 1938.2.3.4/6, Northern Rhodesia, no. 15(1), Lake Young, Shiwa Ngandu, mouth of Mansya River, C. K. Ricardo collector, 1 specimen. Northern Rhodesia, no. (42/5), Mansya River, SE side of Lake Mansya, August 1936, C. K. Ricardo collector, 2 specimens.

Limnatis obscura Moore

Limnatis obscura Moore, 1939c, p. 341, pl. 27 (fig. 34), pl. 28 (figs. 54–55).

Type material: Holotype, BMNH 1938.2.3.3, Naukluft Mts. above Bullsport, South Africa, 1500 meters, December 1933, K. Jordan collector. Paratypes, BMNH 1938.2.3.1/2, Naukluft Mts. above Bullsport, South Africa, 1500 meters, December 1933, K. Jordan collector, 2 specimens.

Macrobdella ditetra Moore

Macrobdella ditetra Moore, 1936d, p. 502; 1953, p. 5, pl. 1 (figs. 2–3), text-fig. 1; 1959a, p. 553, text-fig. 23.8–b.—Meyer, 1959, p. 39.

Type material: Holotype, USNM 36345, marshes near New Orleans La., June 1916, H. E. Hubert collector. Paratypes, USNM 36346, marshes near New Orleans, La., June 1916, H. E. Hubert collector, 3 specimens (dissected). Paratypes, USNM 36347, under logs, border of pond, New Orleans, La., May and June, 1916, H. E. Hubert collector, 14 specimens (1 dissected). Paratype, USNM 36400, Washington, N.C., on the frog *Rana catesbiana*, 1934, B. B. Brandt collector, specimen sectioned (transverse).

Myxobdella africana Moore

Myxobdella africana Moore, 1939c, p. 326, pl. 26 (fig. 24), pl. 28 (fig. 51); 1958, p. 327, pl. 9 (figs. 17, 21).

Type material: Holotype, BMNH 1916.4.6.1, Nairobi, Kenya colony, January 1916.

Myxobdella maculata Moore

Myxobdella maculata Moore, 1938c, p. 328, pl. 27 (fig. 27), pl. 28 (fig. 50).

Type material: Holotype, AMNH 2579, Lang-Chapin Congo Expedition, Mopu, Belgian Congo, no. 705, January 1914.

Philobdella gracile Moore

Philobdella floridana.—Moore, 1898, p. 561. [Not Verrill, 1874.]
Philobdella gracile Moore, 1901a, p. 511, pl. 44 (figs. 12–21); 1918, p. 657, fig. 1005; 1959, p. 554, fig. 23.9.—Viosca, 1962, p. 243.

Type material: No type material was found.

Type-locality: New Orelans, La.

Praobdella radiata Moore

Praobdella radiata Moore, 1958, p. 328, pl. 9 (figs. 18–21).

Type material: Paratypes, USNM 36463, no. 9, Currey's Post, near Pietermaritzburg, Natal, March 1946, R. S. Crass collector, 4 young specimens (1 bisected midsagitally). Paratype, USNM 36427, Mount Gorgongozo, 1200 meters, on bush at waterfall, Portuguese East Africa, November 1957, Stuckenberg collector, young specimen (mounted).

Family HAEMADIPSIDAE

Chtonobdella parva Moore

Chtonobdella parva Moore, 1944b, p. 398, pl. 4 (fig. 6).

Type material: Holotype, BMNH 1934.3.6.30, Tatarii, W. Santo, New Hebrides, 4000 ft, November 1933, J. R. Baker collector.

Haemadipsa bilobata Moore

Haemadipsa bilobata Moore, 1946a, p. 181, figs. 1c–e, 3.

Type material: Holotype, BPBM R154, Ovalau, near Vuma, Fiji Islands, between 800 and 1000 ft, July 1938, E. C. Zimmerman collector.

Haemadipsa montana Moore

Haemadipsa montana Moore, 1927, p. 269, pl. 9 (figs. 38–40); 1932b, p. 1; 1935a, p. 121.

Type material: Holotype, ZSI W 1390/1, near Kukkal, Palni Hills, Madras, India, 5500–6500 ft, August 1922, S. Kemp collector. Para-

types, USNM 36318, near Kukkal, Palni Hills, Madras, India, 5500–6500 ft, August 1922, S. Kemp collector, 5 specimens (1 dissected). Paratype, UNSM 36395, Kukkal, Palni Hills, Madras, India, specimen sectioned (sagittal).

Haemadipsa ornata Moore

Haemadipsa ornata Moore, 1927, p. 284, pl. 5 (fig. 11), pl. 9 (fig. 42), text-fig. 63; 1932b, p. 2.

Type material: Holotype, ZSI ZEV 4875/7, Ghumti, Darjeeling District, India, 3000 ft, G. W. O'Brian collector. Paratypes, USNM 36319, Sonapur, Kamrup, Assam, India, L. W. Middleton collector, 5 specimens. Paratypes, USNM 36320, Assam, India, 2 specimens (have been dry).

Haemadipsa picta Moore

Haemadipsa picta Moore, 1929, p. 286, pl. 7 (figs. 10–12); 1935b, p. 303; 1938c, p. 71; 1944b, p. 386.

Type material: Holotype, USNM 36324, Mt. Matang [Mattang], West of Kuching, Sarawak, British Borneo, July, E. Mjöberg collector. Paratypes, USNM 36325, Mt. Matang [Mattang], west of Kuching, Sarawak, British Borneo, July, E. Mjöberg collector, 6 specimens (1 dissected). Paratype, USNM 36326, Mt. Dulit, Sarawak, British Borneo, 300 ft, E. Mjöberg collector. Paratypes, USNM 36327, Pamabo Range, Sarawak, British Borneo, October, E. Mjöberg collector, 2 specimens. Paratype, USNM 36328, Mt. Penrissen, Sarawak, British Borneo, 3000 ft, E. Mjöberg collector. Paratype, USNM 36329, Mt. Poi, Sarawak, British Borneo, 2000 ft, E. Mjöberg collector. Paratype, USNM 36330, Kalabit country, Sarawak, British Borneo, 3000 ft, E. Mjöberg collector.

Haemadipsa sylvestris interrupta Moore

Haemadipsa sylvestris interrupta Moore, 1935c, p. 70, pl. 6 (figs. 1–4); 1938c, p. 71; 1944, p. 387.

Type material: Paratypes, USNM 36341, Koh Chang, Thailand, in forest, June 1930, A. S. Pearse collector, 40 specimens. Paratypes, USNM 36342, Trengganu, North Malay Peninsula, 6 specimens. Paratypes, USNM 36343, Sungai Piah, Perak, March 1932, A. G. Billings collector, 18 specimens. Paratypes, USNM 36344, Kuala Legap, Plus Valley, Perak, March 1933, M. W. F. Tweedie collector, 21 specimens.

Haemadipsa zeylanica agilis Moore

Haemadipsa zeylanica agilis Moore, 1927, pp. 266, 298, pl. 4 (fig. 6).

Type material: Holotype, ZSI ZEV 4034/7, Shigadh, Naini Tal, India, 5500 ft, Paratypes, USNM 36311, Shigadh, Naina Tal, West

Himalayas, 5500 ft, 32 specimens (1 dissected). Paratype, USNM 36312, Almora, West Himalayas, August 1910. Paratypes, USNM 36313, Sariya Tal about 3 miles from Naina Tal, Kumaon Lakes, station 2, August 1920, B. Prashad collector, 3 specimens. Paratype, USNM 36314, Dhoni Forest, South Malabar, 1500–4000 ft, May 1923, E. Barnes collector. Paratypes, USNM 36315, Woodstock Gully, Landour, United Provinces, 7500 ft, H. G. Kribs collector, 6 specimens.

Haemadipsa zeylanica cochiniana Moore

Haemadipsa zeylanica cochiniana Moore, 1927, p. 265, pl. 9 (fig. 36); 1932b, p. 1.

Type material: Holotype, ZSI W 1453/1, Kavalai, Cochin State, India, September 1914, F. N. Gravely collector. Paratype, USNM 36308, Forest Tramway, mile 10–14, Cochin State, September 1914, F. N. Gravely collector. Paratypes, USNM 36309, Wilgiris, West slopes, 3500 ft. 1911, H. W. Andrews collector, 10 specimens. Paratypes, USNM 36310, Castle Rock, North Kanara district, Bombay, October 1916, S. Kemp collector, 4 specimens.

Haemadipsa zeylanica montivindicis Moore

Haemadipsa zeylanica montivindicis Moore, 1927, pp. 267, 298, pl. 5 (fig. 8), pl. 9 (fig. 37); 1932a, p. 701; 1932b, p. 1; 1935a, p. 119.

Type material: Holotype, ZSI ZEV 2268/7, Sureil, Darjeeling, India, 5000 ft, A. Alcock collector. Paratypes, USNM 36316, Sureil, Darjeeling, India, 5000 ft, 1905, A. Alcock collector, 16 specimens. Paratypes, USNM 36317, Sukli, E. side, Dawna Hills, 2100 ft, November 1911, F. H. Gravely collector, 3 specimens.

Remarks: *montivindicis* should read *montivindica*.

Haemadipsa zeylanica subagilis Moore

Haemadipsa zeylanica subagilis Moore, 1929, p. 279, pl. 7 (figs. 6–7); 1935c, p. 70.

Type material: Paratypes, USNM 36323, Mt. Penrissen [Penerrissen], Sarawak, British Borneo, 3000 ft, E. Mjöberg collector, 2 specimens.

Phytobdella catenifera Moore

Phytobdella catenifera Moore, 1938c, p. 74, pl. 4 (fig. 6), pl. 5 (figs. 9–11); 1944b, p. 397.

Type material: Holotype, NSNM 36357, Gunong Pulai, Johore, Malay Peninsula, from the turtle *Testudo emys*, April 1934, M. W. F. Tweedie collector. Paratypes, USNM 36358, Gunong Pulai, Johore, Malay Peninsula, from *Testudo emys*, April 1934, M. W. F. Tweedie collector, 9 specimens (2 dissected). Paratype, USNM 36403, Gunong Pulai, Johore, Malay Peninsula, from *Testudo emys*, April 1934, M. W. F. Tweedie collector, specimen sectioned (transverse).

Phytobdella lineata Moore

Phytobdella lineata Moore, 1944b, p. 387, pl. 4 (figs. 2–3).

Type material: Holotype, BMNH 1940.12.7.2/5, Kakoda, Papua, New Guinea, 1200 ft, May 1933, L. E. Cheeseman collector. Paratypes, BMNH 1940.12.7.2/5, Kakoda, Papua, New Guinea, 1200 ft, May 1933, L. E. Cheeseman collector, 4 specimens. Paratypes, USNM 36368, Kakoda, Papua, New Guinea, 1200 ft, May 1933, L. E. Cheeseman collector, 2 specimens (1 dissected). Paratypes, USNM 36407, Kakoda, Papua, New Guinea, 1200 ft, May 1933, L. E. Cheeseman collector, 2 specimens sectioned (1 transverse, 1 sagittal).

Phytobdella maculosa Moore

Phytobdella maculosa Moore, 1944b, p. 392, pl. 4 (figs. 4–5).

Type material: Holotype, BMNH 1940.12.7.6/11, Mafulu, Papua, New Guinea, 4000 ft, no. 520, December 1931, L. E. Cheeseman collector. Paratypes, BMNH 1940.12.7.6/11, Mafulu, Papua, New Guinea, 4000 ft, no. 520, December 1931, L. E. Cheeseman collector. Paratypes, BMNH 1940.12.7.12/13, Mafulu, Papua, New Guinea, 4000 ft, no. 520, December 1931, L. E. Cheeseman collector [total of 8 paratypes in BMNH]. Paratypes, USNM 36367, Mafulu, Papua, New Guinea, 4000 ft, December 1933, L. E. Cheeseman collector, 2 specimens (1 dissected).

Tritetrabdella Moore

Tritetrabdella scandens Moore

Tritetrabdella scandens Moore, 1938c, p. 72, pl. 5 (figs. 7–8).

Type material: Paratype, USNM 36356, Penang Hill [?Penang Island], April 1935, M. W. F. Tweedie collector, specimen sectioned (transverse).

Family Erpobdellidae

Barbronia delicata Moore

Barbronia delicata Moore, 1939c, p. 355, pl. 28 (fig. 62).

Type material: Holotype, BMNH 1930.9.15.7/9, Christy Tanganyika Expedition, Kapili, Lake Tanganyika, no. 450, October 1926. Paratypes, BMNH 1930.9.15.7/9, Christy Tanganyika Expedition, Kapili, Lake Tanganyika, no. 450, October 1926, 19 specimens. Paratypes, USNM 36366, Christy Tanganyika Expedition, Kapili, Lake Tanganyika, no. 450F, October 1926, 4 specimens: 3 mounted (2 slides), 1 sectioned (sagittal).

Remarks: Moore stated (p. 356) that there are 21 type-specimens.

But 24 type-specimens are present or accounted for: R. W. Sims confirmed the presence of 20 in the BMNH, and there are 4 in the USNM collection.

Dina anoculata Moore

Dina anoculata Moore, 1898, p. 558; 1918, p. 659; 1959, p. 556.
Dina (*Dina*) *anoculata*.—Soós, 1966b, p. 387.

Type material: Syntype, USNM 4844, San Diego County, California, O. R. Orcutt collector, specimen sectioned (sagittal).

Dina bucera Moore

Dina bucera Moore, 1949, p. 38; 1953, p. 9, pl. 1 (fig. 4), text-fig. 2.
Mooreobdella bucera.—Moore, 1959, p. 555.—Mann, 1962, p. 167.
Dina (*Mooreobdella*) *bucera*.—Soós, 1966b, p. 373.

Type material: Holotype, USNM 36370, permanent pond on Platt Road, 7.5 miles from Ann Arbor, Mich., April 1941, R. Kenk collector. Paratypes, USNM 36371, permanent pond on Platt Road, 7.5 miles from Ann Arbor, Mich., April 1941, R. Kenk collector, 2 specimens (1 dissected). Paratypes, USNM 36372, temporary pond on W side of U. S. Highway 23, about 5.5 miles SE of Ann Arbor, Mich., April 1941, R. Kenk collector, 11 specimens. Paratypes, USNM 36373, temporary pond on W side of U.S. Highway 23 about 5.5 miles SE of Ann Arbor, Mich., December 1941, R. Kenk collector, 4 specimens. Paratypes, USNM 36374, temporary pond on W side of U.S. Highway 23, about 5.5 miles SE of Ann Arbor, Mich., May 1941, R. Kenk collector, 14 specimens. Paratype, USNM 36375, permanent pond on E side of Platt Road about 7.5 miles SSE of Ann Arbor, Mich., May 1941, R. Kenk collector.

Dina dubia Moore and Meyer

Dina dubia Moore and Meyer, 1951, p. 70, pl. 9 (figs. 6–7).—Moore, 1959, p. 556.
Dina dubia Moore [sic].—Oliver, 1958, p. 163.
Dina (*Dina*) *dubia*.—Soós, 1966b, p. 387.

Type material: No type material was found.

Type-locality: Outpost Island, Great Slave Lake, Northwest Territories, Canada, in shallow water.

Dina microstoma Moore

Dina microstoma Moore, 1901a, p. 537, pl. 47 (fig. 37); 1906, p. 163; 1908, p. 200; 1918, p. 659; 1936c, p. 114.—Soós, 1963, p. 259.
Erpobdella (*Mooreobdella*) *microstoma*.—Pawlowski, 1955, p. 5.
Mooreobdella microstoma.—Moore, 1959, p. 555.—Mann, 1962, p. 167.
Dina (*Mooreobdella*) *microstoma*.—Soós, 1966b, p. 389.

Type material: No type material was found.

Type-locality: Illinois.

Dina parva Moore

Dina parva Moore, 1912, p. 125, pl. 5 (figs. 33–34), pl. 6 (figs. 41–43); 1918, p. 659; 1920, p. 95; 1922, p. 39; 1924, p. 30; 1936c, p. 114; 1959, p. 556.
Dina (Dina) parva.—Soós, 1966b, p. 388.

Type material: No type material was found.
Type-locality: Minnesota.

Erpobdella punctata annulata Moore

Erpobdella punctata annulata Moore, 1922, p. 38; 1959, p. 556.

Type material: No type material was found.
Type-locality: Ucluelet, Vancouver Island, British Columbia, June 1909.

Dina quaternaria Moore

Dina quaternaria Moore, 1930a, p. 40; 1930b, p. 181, pl. 8 (figs. 13–15).
Erpobdella quaternaria.—Soós, 1966b, p. 393.

Type material: Paratypes, USNM 36331, Soochow, China, 1925, N. Gist Gee collector, 7 specimens.

Erpobdella triannulata Moore

Erpobdella triannulata Moore, 1908, p. 199; 1936a, p. 43.

Type material: Holotype, ANSP 2389, Lake Amatitlan, NW end, near Hotel Laguna, Guatemala, under rocks, January 1906, S. E. Meek collector. Paratypes, ANSP 2390, Lake Amatitlan, NW end, near Hotel Laguna, Guatemala, under rocks, January 1906, S. E. Meek collector, 112 specimens (some dissected).

Gastrostomobdella Moore

Gastrostomobdella monticola Moore

Gastrostombdella monticola Moore, 1929, p. 270, pl. 7 (figs. 1–5); 1935c, p. 77; 1946, p. 180.

Type material: Paratypes, USNM 36321, Mt. Poi [Poe or Poeh], W of Kuching, 5000 ft, Sarawak, British Borneo, June 1927, E. Mjöberg collector, 2 specimens. Paratypes, USNM 36322, Head Camp, Sarawak, British Borneo, E. Mjöberg collector, 2 specimens. Paratype, USNM 36397, Mt. Poi, W of Kuching, 5000 ft, Sarawak, British Borneo, specimen mounted. Paratype, USNM 36396, Head Camp, Sarawak, British Borneo, specimen sectioned (transverse).

Gastrostomobdella quinqueannulata Moore

Gastrostomobdella quinqueannulata Moore, 1946a, p. 177, figs. 1a, b; 2a, d.

Type material: Holotype, USNM 21127, Punaluu, Hawaii, March

1930, O. Degener and Y. Iwasski collectors. Paratype, USNM 36369, Punaluu, Hawaii, March 1930, O. Degener and Y. Iwasski collectors.

Remarks: Moore (p. 180) gives 110/400 as the USNM number. This is the accession, not the catolog number.

Gastrostomobdella vagabunda Moore

Gastrostomobdella vagabunda Moore, 1935c, p. 72, pl. 7 (figs. 6–7); 1946, p. 180.

Type material: Paratypes, USNM 36398, Plus Valley, Perak, Malay Peninsula, March 1933, 2 specimens mounted (1 slide). Paratypes, USNM 36399, Plus Valley, Perak, Malay Peninsula, March 1933, 2 specimens sectioned (transverse).

Mimobdella africana Moore

Mimobdella africana Moore, 1939c, p. 356, pl. 27 (figs. 39–40).

Type material: Holotype, BMNH 1938.3.3.2, Mbula Island, Lake Tanganyika, Northern Rhodesia, no. 415, February 1937, C. K. Ricardo collector.

Salifa elongata Moore

Salifa elongata Moore, 1939c, p. 351, pl. 27 (fig. 37).

Type material: Holotype, BMNH 1930.9.15.63, Christy Tanganyika Expedition, Kirando, Kapili Bay, Lake Tanganyika, March 1926. Paratypes, BMNH 1930.9.15.17/18, Christy Tanganyika Expedition, Kirando, Kapili Bay, Lake Tanganyika, 2 specimens. Paratype, USNM 36365, Christy Tanganyika Expedition, Kirando, Lake Tanganyika, no. 454, March 1926, 1 specimen (in 2 pieces). Paratypes, USNM 36404, Christy Tanganyika Expedition, Kirando, Kapili Bay, Lake Tanganyika, no. 453 4F, November 1926, 2 specimens (1 mounted, in 2 pieces; 1 sectioned, sagittal). Paratype, USNM 36405, Christy Tanganyika Expedition, Kirando, Lake Tanganyika, no. 452 F, February 1926, 1 specimen sectioned (anterior end sagittal, middle region transverse).

Family DIESTECOSTOMIDAE

Diestecostoma magna Moore

Diestecostoma magna Moore, 1945b, p. 261, figs. 1–3.
Diestecostoma magnum.—Soós, 1966a, p. 157.

Type material: Holotype, USNM 20642, Rio de los Playas, headwaters of Tonala River, between Veracruz and Chiapas, Mexico, March 1944, M. W. Stirling collector. Paratype, USNM 20643, Tehuantepec, Mexico, F. E. Sumichrast collector.

Diestecostoma octannulata Moore

Diestecostoma octannulata Moore, 1946a, p. 184, figs. 1f-h, 2e-g, 4.
Diestecostoma octoannulatum.—Soóe, 1966a, p. 157.

Type material: No type material was found.

Type-locality: Volcana Tajumulco, Guatemala, under stone at 12,500–13,000 ft.

Remarks: *octoannulatum* should read *octannulatum*.

Name Changes

original name	*current name*
Dina bucera Moore, 1949	*Mooreobdella bucera* (Moore) Moore, 1959
Dina microstoma Moore, 1901	*Mooreobdella microstoma* (Moore) Moore, 1959
Glossiphonia conifera Moore, 1933	*Helobdella conifera* (Moore) Autrum, 1936
Glossiphonia duplicata Moore, 1911	*Helobdella duplicata* (Moore) Autrum, 1936
Glossiphonia simplex Moore, 1911	*Helobdella simplex* (Moore) Autrum, 1936
Glossiphonia (*Helobdella*) *nuda* Moore, 1924	*Helobdella nuda* (Moore) Moore, 1930
Hirudinaria blanchardi Moore, 1901	*Poecilobdella blanchardi* (Moore) Caballero, 1956 [by implication]
Hirudinaria javanica similis Moore, 1945	*Poecilobdella javanica similis* (Moore) Cabellero, 1956 [by implication]
Hirudinaria (*Poecilobdella*) *viridis* Moore, 1927	*Poecilobdella viridis* (Moore) Caballero, 1956 [by implication]
Hirudo nipponia var. *fuscolineata* Moore, 1924	*Hirudo birmanica* (Blanchard) Moore, 1927
Microbdella biannulata Moore, 1900	*Oligobdella biannulata* (Moore) Moore, 1918
Placobdella mexicana Moore, 1898	*Haementeria* (*Placobdella*) *moorei* Autrum, 1936
Placobdella montifera Moore, 1906	*Haementeria* (*Placobdella*) *montifera* (Moore) Autrum, 1936
Placobdella quadrioculata Moore, 1930	*Haementeria* (*Placobdella*) *quadrioculata* (Moore) Autrum, 1936
Pontobdella biannulata Moore, 1957	*Stibarobdella biannulata* (Moore) Llewellyn, 1966
Protoclepsine sexoculata Moore, 1898	*Theromyzon sexoculatum* (Moore) Autrum, 1936

Remarks: I here follow Moore (1959) and Mann (1962) in raising *Mooreobdella* Pawlowski to generic rank and assigning to it those Erpobdellidae species (p. 23), which Moore originally placed in *Dina* R. Blanchard, characterized by having annulus *b*6 of complete segments distinctly enlarged and subdivided, and ejaculatory ducts without preatrial loops.

Publications by Moore on HIRUDINEA with Taxa Described

1898. Leeches of the U.S. National Museum. Proc. U.S. Nat. Mus., vol. 21, no. 1160, pp. 543–563, pl. 40. [*Protoclepsine, Protoclepsine secoculata, Placobdella mexicana, Trachelobdella maculata, Trachelobdella rugosa, Pisciola zebra, Dina anoculata.*]

1900a. A description of *Microbdella biannulata* with especial regard to the constitution of the leech somite. Proc. Acad. Nat. Sci. Philadelphia, vol. 52, pp. 50–73, pl. 6. [*Microbdella, Microbdella biannulata.*]

1900b. Note on Oka's biannulate leech. Zool. Anz., vol. 23, pp. 474–477, 1 fig.

1901a. The Hirudinea of Illinois. Bull. Illinois State Lab. Nat. Hist., vol. 5, pp. 479–547, pls. 42–47. [*Actinobdella, Actinobdella inequiannulata, Philobdella gracile, Dina microstoma.*]

1901b. Descriptions of two new leeches from Porto Rico. Bull. U. S. Fish Comm., vol. 2, pp. 211–222, pls. 12–13. [*Hirudinaria blanchardi, Diplobdella, Diplobdella antellarum.*]

1906. Hirudinea and Oligochaeta collected in the Great Lakes region. Bull. Bur. Fish., vol. 25, pp. 153–171, pl. 32; 2 figs. [*Actinobdella annectens; Placobdella montifera.*]

1908. The leeches of Lake Amatitlan. *In* Meek, The zoology of Lakes Amatitlan and Atitlan, Guatemala, with special reference to ichthyology. Field Columbian Mus., Zool. Ser., vol. 7, pp. 199–201. [*Erpobdella triannulata.*]

1910. *Platybdella chilensis*, sp. nov. Rev. Chilean Hist. Nat., vol. 14, pp. 29–30. [*Platybdella chilensis.*]

1911. Hirudinea of southern Patagonia. Repts. Princeton Univ. Exped. to Patagonia, 1896–1899, vol. 3, pp. 669–689, pls. 49–50. [*Glossiphonia duplicata, Glossiphonia simplex.*]

1912. Classification of the leeches of Minnesota. *In* The leeches of Minnesota. Geol. Nat. Hist. Surv. Minnesota, Zool. Ser. no. 5, pt. 3, pp. 63–150, pls. 1–6. [*Haemopis plumbeus, Dina parva.*]

1918. The leeches (Hirudinea). *In* Ward and Shipple, Fresh-water biology, pp. 646–660, 14 figs. New York, N.Y.: John Wiley and Sons. [*Oligobdella* nom. nov. for *Microbdella* Moore 1900.]

1920. The leeches of Lake Maxinkuckee. *In* Evermann and Clark, Lake Maxinkuckee: A physical and biological survey, vol. 2, pp. 87–95. Dept. Conserv., State of Indiana.

1921. Hirudinea: Annelids, parasitic worms, protozoans, etc. Rept. Canadian Arctic Exped. 1913–18 Ottawa, vol. 9, pt. C, 4 pp.

1922. The fresh-water leeches (Hirudinea) of southern Canada. Canadian Field Natur., vol. 36, pp. 6–11, 37–39. [*Erpobdella punctata annulata.*]

1923. The control of blood-sucking leeches, with an account of the leeches of Palisades Interstate Park. Roosevelt Wild Life Bull., vol. 2, no. 1, pp. 7–53, pl. 1, 17 figs.

1924a. The leeches (Hirudinea) of Lake Nipigon. Univ. Toronto Stud., Publ. Ontario Fish. Res. Lab., no. 23, pp. 17–31, 1 fig. [*Actinobdella triannulata.*]

1924b. The anatomy and systematic position of the Chilean terrestrial leech, *Cardea valdiviana* (Philippi). Proc. Acad. Nat. Sci. Philadelphia, vol. 76, pp. 29–48, pl. 3.

1924c. Notes on some Asiatic leeches (Hirudinea) principally from China, Kashmir, and British India. Proc. Acad. Nat. Sci. Philadelphia, vol. 76, pp. 343–388, pls. 19–21. [*Trachelobdella okae, Glossiphonia (Helobdella) nuda, Hemiclepsis marginata asiatica, Hirudo nipponia* var. *fuscolineata.*]

1927. The segmentation (metamerism and annulation) of the Hirudinea: Arhynchobdellae. *In* Harding and Moore, The fauna of British India: Hirudinea, pp. 1–12, 97–302, pls. 1, 3–9, 25 figs. London. [*Dinobdella, Dinobdella notata, Hirudinaria (Poecilobdella) viridis, Haemadipsa zeylanica cochiniana, Haemadipsa zeylanica agilis, Haemadipsa zeylanica montivindicis, Haemadipsa montana, Haemadipsa ornata.*]

1929. Leeches from Borneo with descriptions of new species. Proc. Acad. Nat. Sci. Philadelphia, vol. 81, pp. 267–295, pl. 7, 3 figs. [*Gastrostomobdella, Gastrostomobdella monticola, Haemadipsa zeylanica subagilis, Haemadipsa picta.*]

1930a. The leeches (Hirudinea) of China. Peking Soc. Nat. Hist. Bull. 1929–1930, vol. 4, pt. 3, pp. 39–43. [*Dina quaternaria, Haemopis gracilis.*]

1930b. Leeches (Hirudinea) from China with descriptions of new species. Proc. Acad. Nat. Sci. Philadelphia, vol. 82, pp. 169–192, pls. 7–8, 1 fig. [*Glossiphonia lata multipapillata, Placobdella quadrioculata.*]

1931a. The life of the Darjeeling land leech. Journ. Darjeeling Nat. Hist. Soc., vol. 5, pp. 106–117.

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1932b. Land leeches in the "Fauna of British India"—Some corrections. Rec. Indian Mus., vol. 34, pt. 1, pp. 1–6.

1932c. Leeches and planarians compared. Journ. Darjeeling Nat. Hist. Soc., vol. 7, pp. 61–67.

1933. Leeches. *In* Scientific results of the Cambridge Expedition to the East African Lakes, 1930–1. Journ. Linnean Soc., vol. 38, pp. 297–299. [*Glossiphonia conifera.*]

1935a. More about land leeches: How abundant are they? Journ. Darjeeling Nat. Hist. Soc., vol. 9, pp. 116–124.

1935b. A description of *Aetheobdella hirudoides* gen. et sp. n., from New South Wales, with notes on leeches collected by the Oxford University Sarawak Expedition. Ann. Mag. Nat. Hist., ser. 10, vol. 16, pp. 296–304, pl. 10, 3 figs. [*Aetheobdella, Aetheobdella hirudoides*].

1935c. Leeches from Borneo and the Malay peninsula. Bull. Raffles Mus., no. 10, pp. 67–79, pls. 6–7. [*Haemadipsa sylvestris interrupta, Gastrostomobdella vagabunda.*]

1936a. Hirudinea from Yucatan. Carnegie Inst. Washington, no. 457, pp. 41–43.

1936b. Report on Hirudinea. *In* Yale North Indian Expedition. Mem. Connecticut Acad. Arts. Sci., vol. 10, art. 11, pp. 191–192.

1936c. The leeches of Lake Nipissing. Canadian Field-Natur., vol. 50, pp. 112–114.

1936d. *Macrobdella diletra. In* Brandt, Parasites of certain North Carolina Salientia. Ecol. Monogr., vol. 6, pp. 491–532. [*Macrobdella diletra.*]

1937. Laboratory care of leeches. *In* Galtsoff, Lutz, Welch, and Needham, Culture methods for invertebrate animals, pp. 201–204. Ithaca, N.Y.

1938a. Leeches. *In* Australasian Antarctic Expedition, 1911–1914. Sci. Rept., ser. C, vol. 10, pt. 3, pp. 1–15, pl. 1, 1 fig. [*Pontobdella rugosa, Oxytonostoma varituberculata.*]

1938b. Leeches (Hirudinea) from Yucatan caves. Carnegie Inst. Washington, no. 491, pp. 67–70, 2 figs. [*Glossiphonia magnidiscus.*]

1938c. Leeches (Hirudinea) principally from the Malay Peninsula, with descriptions of new species. Bull. Raffles Mus., no. 14, pp. 64–80, pls. 4–5. [*Limnatis dissimulata, Tritetrabdella, Tritetrabdella scandens, Phytobdella catenifera.*]

1939a. Leeches (Hirudinea) from the Atlas Mountains of Morocco. Ann. Mag. Nat. Hist., ser. 11, vol. 3, pp. 80–87.

1939b. *Helobdella punctato-lineata*, a new leech from Puerto Rico. Puerto Rico Journ. Hyg. Trop. Med., vol. 14, pp. 422–429, 2 figs. [*Helobdella punctato-lineata.*]

1939c. Additions to our knowledge of African leeches (Hirudinea). Proc. Acad. Nat. Sci. Philadelphia, vol. 90, pp. 297–360, pls. 25–28, 1 fig. [*Glossiphonia disjuncta, Batracobdella quadrata, Placobdella* (*Parabdella*) *aspera, Placobdella pulchra, Placobdella auroguttata, Phyllobdella, Phyllobdella maculata, Myxobdella africana, Myxobdella maculata, Limnatis obscura, Limnatis fenestrata, Salifa elongata, Barbronia delicata, Mimobdella africana.*]

1940. *Austrobdella anoculata*, a new species of fish leech from Greenland. Journ. Washington Acad. Sci., vol. 30, pp. 520–524, 4 figs. [*Austrobdella anoculata.*]

1944a. The leeches (Hirudinea) of Lake Huleh, Palestine. Ann. Mag. Nat. Hist., ser. 11, vol. 11, pp. 182–190.

1944b. Leeches in the British Museum, mostly Haemadipsinae from the South Pacific with descriptions of new species. Ann. Mag. Nat. Hist., ser. 11, vol. 11, pp. 383–409, pl. 4. [*Phytobdella lineata, Phytobdella maculosa, Chtonobdella parva.*]

1945a. A water-squirting Indian leech. Journ. Bengal Nat. Hist. Soc., vol. 20, pp. 16–19.

1945b. Two new leeches (Hirudinea) in the collection of the United States National Museum. Journ. Washington Acad. Sci., vol. 35, pp. 261–265, 4 figs. [*Diestecostoma magna, Hirudinaria javanica similis.*]

1946a. Leeches (Hirudinea) from the Hawaiian Islands, and two new species from the Pacific region in the Bishop Museum collection. Occ. Pap. Bernice P. Bishop Mus., vol. 18, no. 11, pp. 171–191, 4 figs. [*Gastrostomobdella quinqueannulata, Haemadipsa bilobata, Diestecostoma octannulata.*]

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1952a. New Piscicolidae (leeches) from the Pacific and their anatomy. Occ. Pap. Bernice P. Bishop Mus., vol. 21, no. 2, pp. 17–44, 9 figs. [*Marsipobdella, Marsipobdella sacculata, Johanssonia abditovesiculata, Branchellion lobata.*]

1952b. Professor A. E. Verrill's fresh-water leeches – A tribute and a critique. Notulae Naturae Acad. Nat. Sci. Philadelphia, no. 245, pp. 1–15, 7 figs. [*Helobdella papillata.*]

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1957. Hirudinea. BANZ Antarctic Research Expedition, 1929–1931, ser. B, vol. 6, pt. 6, pp. 99–105, 2 figs. [*Pontobdella biannulata, Trachelobdellina, Trachelobdellina glabra.*]

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